IN THE CLAIMS:

Please substitute the following claims for the same-numbered claims in the application:

Claims 1-21 (Cancelled).

22.   (New) A method for optimal clustering of master-slave ad-hoc wireless network, said method comprising:

modeling all nodes in said wireless network in a star-shaped graphical format;

assigning a weight to said all nodes, wherein said weight is a function of defined optimization parameters comprising an amount of neighbor nodes of each said node, a power consumption of said node, and a maintenance overhead associated with said node;

assigning any of master and slave status to each node and connecting slave nodes in said wireless network to master nodes in said wireless network to form subgroups comprising a bounded size; .

interconnecting said subgroups through non-center nodes in said wireless network to form a single cluster using any of:

connecting a slave node at the boundary of one subgroup to the master of an adjacent subgroup;

connecting two adjacent master nodes together; and

converting a slave node at said boundary to a master node and linking the converted node to any of slave nodes and master nodes in adjacent subgroups;

updating said weight of said all nodes at each occurrence of a removal of an edge of each

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node marked as any of said master node and said slave node; and

minimizing the number of master nodes in said wireless network by the interconnection

of said subgroups based on said defined optimization parameters.

23.   (New) The method of claim 22, wherein said each node is assigned any of master and

slave status based on a degree of connectivity of said node with other unassigned nodes.

24.   (New) The method of claim 22, wherein the assignment of master and slave status is

implemented by a single entity located at any of (i) within said cluster as one of said nodes in

said cluster, and (ii) outside said cluster.

25.   (New) The method of claim 22, wherein a formation of said subgroups and said

interconnection between said subgroups is based on said weight associated with said each node

in said wireless network, wherein said weight of said each node depends upon said amount of

neighbor nodes.

26.   (New) The method of claim 22, wherein the minimizing process is applied to the

formation of a scatternet in a Bluetooth network.

27.   (New) The method of claim 26, wherein activities in the assigning and interconnecting

processes are carried out in a distributed manner at each node further comprising:

assigning any of master and slave status by each node based on any of a master status, a

slave status, and an unassigned status of all neighboring connected nodes to said node;

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forming subgroups around each master node;

merging said subgroups by any of:

forming any of slave-slave bridges, slave-master bridges, and master-master
bridges; and

forming additional master nodes.

28.   (New) The method of claim 22, wherein in said star-shaped graphical format, an edge

between a pair of said nodes in said wireless network occurs if said pair of nodes are in radio

range of each other, and wherein said each node discovers other nodes within said radio range in

said wireless network using device discovery protocols.

29.   (New) The method of claim 22, further comprising minimizing the number of

communication hops in said wireless network based on the minimal number of master nodes in

said wireless network.

30.   (New) A computer program product comprising computer readable program code stored

on a computer program readable storage medium embodied therein for performing a method for

optimal clustering of master-slave ad-hoc wireless network, said method comprising:

modeling all nodes in said wireless network in a star-shaped graphical format;

assigning a weight to said all nodes, wherein said weight is a function of defined

optimization parameters comprising an amount of neighbor nodes of each said node, a power

consumption of said node, and a maintenance overhead associated with said node;

assigning any of master and slave status to each node and connecting slave nodes in said

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wireless network to master nodes in said wireless network to form subgroups comprising a

bounded size;

interconnecting said subgroups through non-center nodes in said wireless network to

form a single cluster using any of:

connecting a slave node at the boundary of one subgroup to the master of an

adjacent subgroup;

connecting two adjacent master nodes together; and

converting a slave node at said boundary to a master node and linking the

converted node to any of slave nodes and master nodes in adjacent subgroups;

updating said weight of said all nodes at each occurrence of a removal of an edge of each

node marked as any of said master node and said slave node; and

minimizing the number of master nodes in said wireless network by the interconnection

of said subgroups based on said defined optimization parameters.

31.   (New) The computer program product of claim 30, wherein said each node is assigned

any of master and slave status based on a degree of connectivity of said node with other

unassigned nodes.

32.   (New) The computer program product of claim 30, wherein the assignment of master and

slave status is implemented by a single entity located at any of (i) within said cluster as one of

said nodes in said cluster, and (ii) outside said cluster.

33.   (New) The computer program product of claim 30, wherein a formation of said

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subgroups and said interconnection between said subgroups is based on said weight associated

with said each node in said wireless network, wherein said weight of said each node depends

upon said amount of neighbor nodes.

34.   (New) The computer program product of claim 30, wherein the minimizing process is

applied to the formation of a scatternet in a Bluetooth network.

35.   (New) The computer program product of claim 34, wherein activities in the assigning and

interconnecting processes are carried out in a distributed manner at each node, and wherein said

method further comprises:

        assigning any of master and slave status by each node based on any of a master status, a

slave status, and an unassigned status of all neighboring connected nodes to said node;

        forming subgroups around each master node;

        merging said subgroups by any of:

                forming any of slave-slave bridges, slave-master bridges, and master-master

        bridges; and

                forming additional master nodes.

36.   (New) The computer program product of claim 30, wherein in said star-shaped graphical

format, an edge between a pair of said nodes in said wireless network occurs if said pair of nodes

are in radio range of each other, and wherein said each node discovers other nodes within said

radio range in said wireless network using device discovery protocols.

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37.   (New) The computer program product of claim 30, said method further comprising

minimizing the number of communication hops in said wireless network based on the minimal

number of master nodes in said wireless network.

38.   (New) A method for optimal clustering of master-slave ad-hoc wireless network, said

method comprising:

     modeling all nodes in said wireless network in a star-shaped graphical format;

     assigning a weight to said all nodes, wherein said weight is a function of defined

optimization parameters comprising an amount of neighbor nodes of each said node, a power

consumption of said node, and a maintenance overhead associated with said node;

     assigning any of master and slave status to each node and connecting slave nodes in said

wireless network to master nodes in said wireless network to form subgroups comprising a

bounded size;

     interconnecting said subgroups through non-center nodes in said wireless network to

form a single cluster using any of:

          connecting a slave node at the boundary of one subgroup to the master of an

adjacent subgroup;

          connecting two adjacent master nodes together; and

          converting a slave node at said boundary to a master node and linking the

converted node to any of slave nodes and master nodes in adjacent subgroups;

     updating said weight of said all nodes at each occurrence of a removal of an edge of each

node marked as any of said master node and said slave node;

     minimizing the number of master nodes in said wireless network by the interconnection

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of said subgroups based on said defined optimization parameters; and

minimizing the number of communication hops in said wireless network based on the

minimal number of master nodes in said wireless network,

wherein a formation of said subgroups and said interconnection between said subgroups

is based on said weight associated with said each node in said wireless network, wherein said

weight of said each node depends upon said amount of neighbor nodes, and

wherein the minimizing processes are applied to the formation of a scatternet in a

Bluetooth network.

39.   (New) The method of claim 38, wherein said each node is assigned any of master and

slave status based on a degree of connectivity of said node with other unassigned nodes.

40.   (New) The method of claim 38, wherein the assignment of master and slave status is

implemented by a single entity located at any of (i) within said cluster as one of said nodes in

said cluster, and (ii) outside said cluster.

41.   (New) The method of claim 38, wherein activities in the assigning and interconnecting

processes are carried out in a distributed manner at each node further comprising:

assigning any of master and slave status by each node based on any of a master status, a

slave status, and an unassigned status of all neighboring connected nodes to said node;

forming subgroups around each master node;

merging said subgroups by any of:

forming any of slave-slave bridges, slave-master bridges, and master-master

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bridges; and

forming additional master nodes.

42.   (New) The method of claim 38, wherein in said star-shaped graphical format, an edge

between a pair of said nodes in said wireless network occurs if said pair of nodes are in radio

range of each other, and wherein said each node discovers other nodes within said radio range in

said wireless network using device discovery protocols.

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